Gentlemen:

At the hearing held by DOER in Holyoke on 7/28/10, it was suggested thst written comments could be submitted.

It was the feeling by me and several of my colleagues that views expressed in the Manomet report were not as balanced as they might be. I am attaching here, a rather long statement of my views on the matter which I should like to submit for consideration by the group in reformulating legislation dealing with biofuels

In summary, I suggest the following:

1. It is mandated by te Commonwealth that CO2 emissions be cut by at least 80%. This requirement is a modest one if we are to successfully deal with global warming. Thus, this should be a minimum goal. To meet it we shall have to abandon or greatly reduce fossil fuel use.

2. Conservation is the quickest and cheapest approach and is highly recommended. Solar, wind, and geothermal should be strongly promoted. However, I do not believe that this combination will be sufficient to meet the goal. I can think of no other alternative to biofuel that could do it. Therefore, I think there is a need for the use of biofuels.

3. I think the proposal for a few large biofuel plants may be too ambitious. Use of biofuels should be regulated to assure that forests will not be depleted and that they will not contribute to pollution or add to net atmospheric CO2. This is possible to do but will add to the cost. With current fuel pricing, it is uncertain whether the large biofuel

facilities can operate profitably when conforming to these regulations. It may be possible in the future when fossil fuel and energy prices increase, as they certainly will.

4. I do feel that "sustainable harvesting" so as not to add to net atmospheric CO2 is possible, but its use must be regulated through enforced forest management.

5. Statements like "biofuel emits 2X as much CO2 as fossil fuel for equal amounts of energy production" are misleading in that it is NET CO2 that should be considered, the difference between emission and absorption. Their CO2 absorption in formation is vastly different by an amount depending on how the biomass is harvested, but it will certainly bring the ratio below the stated value of two.

6. I contest the statement made by a person claiming to be a "soil scientist" that decomposing biomass in the soil does not mostly emit its carbon as CO2 within time periods of a decade or so. This statement should be verified.

7. I believe pollution can be managed and is not unique to biofuels. I spent a year in England in the late 1940's when soft coal burning in fireplaces was common. The air was much worse than anything experienced here. Now as a result of regulatory and practice changes, it was rendered clean. This happened with soft coal and I think it is easier to do with biofuels. Wood is burned at Cooley-Dickenson Hospital in Northamption where emissions conform to pollution requirements.

8. The use of and heating of river water is not unique to biofuels. It is a consequence of the laws of thermodynamics that not more than about 1/3 of the energy content of ANY fuel can be converted into electricity. The rest emerges as heat, which is wasted id used to heat river water. This happens with fossil fuel plants as well as biofuel ones and can only be avoided if cogeneration is employed. The same problem would be encountered with fossil fuel plants that produce the same amount of electricity.

9. A difficulty with large facilities is that they are often remotely located where use of this heat for cogeneration is difficult. With smaller facilities, locations closer to the users of this heat is more feasible. This is the case, for example, with the new UMass, Amherst power plant where the heat is used for heating and cooling University buildings. There should be the requirement that cogeneration be employed so as not to waste most of the energy content of the fuel.

10. An economic analysis for use of biofuels should include their value for use of products other than heat. Thus, the agricultural and superior sequestering value of biochar should be considered. As the economics of energy production changes,such non-fuel uses will be of more importance and this future prospect should enter the analysis. The effects on soil

quality needs to be considered.

10,It should be recognized that most biofuels come from outside MA and add to the economics of their producers. Most biofuels will come from MA and contribute to the welfare of its citizens and also provides them with jobs.

I recently co-authored an opinion piece that was published in the Amherst Bulletin. A copy is attached which should be of interest to yiur committee.

Sincerely,

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